

Cigarette Taxes and the Household Budget: APPENDIX

Michael E. Darden^{1,4}, Reginald Hebert², Michael F. Pesko³, and Samuel Sturm¹

¹Johns Hopkins University

²Yale University

³University of Missouri

⁴NBER

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1 Survey—Additional Details and Results

We constructed our survey in Qualtrics, and we received IRB approval to field the survey from the Johns Hopkins Homewood IRB.¹ The survey was posted to the survey research platform Prolific on January 29th, 2025. Prolific allows researchers to screen potential survey respondents on a wide variety of socioeconomic, demographic, health, and behavioral characteristics. As our interest is in cigarette smokers, we restricted our pool of potential respondents to those in either of the following categories:

- I am a current smoker (smoke at least 5 cigarettes a day and have smoked this amount for at least one year)
- I am a recent smoker (smoke at least 5 cigarettes a day and have smoked this amount for less than one year).

We also excluded a small number of Prolific respondents who had previously taken pilot versions of our survey. The Prolific platform identified 5,323 potential respondents who met the above criteria and had been active on the platform within the previous 90 days. We specified, and pre-paid, for a sample of 2,200 participants to receive \$12/hour for a survey that we advertised as taking seven minutes. Data collection was completed on January 31st, and the median time taken was five minutes and 15 seconds.

The main survey data was collected directly in Qualtrics. Prolific also provides a core set of demographic information on each respondent, including age and race, as well as statistics on each respondent usage of Prolific. We merged these data to our survey data on a unique respondent identifier generated by Prolific for a final sample of 2,202 respondents. Of these observations, we handled missing values in two ways. First, for those with missing values of baseline characteristics asked in our survey (including education, children in the household, zip code, income, and smoking behavior), we created a binary variable that indicated a missing value and kept the observation. Table 1 presents balance statistics as in the main paper on these missing value binary variables. No variable was missing in more than 1.3% of cases. We include these variables in our main regression models. Second, for those with missing values in any of the experimental questions, we dropped the observation entirely. In total, we eliminated 159 observations for missing responses to key smoking questions. We also dropped 18 additional respondents who claimed in our baseline assessment of smoking behavior to have never smoked cigarettes (in contradiction of the Prolific screens above). We also dropped 20 observations whose demographic information from Prolific was missing. The resulting sample included 2,005 respondents corresponding to the sample in the main paper.

Table 1: Balance Table: Missing Values

	Overall	Tax Treatment		p-value
		No (n=1,019)	Yes (n=986)	
Education	0.001	0.002	0.000	0.164
Income	0.004	0.004	0.005	0.701
Children	0.012	0.017	0.008	0.084
Cigarettes/Day	0.013	0.014	0.012	0.756
Purchasing Behavior	0.000	0.000	0.001	0.309
Noncombustibles	0.001	0.002	0.000	0.164

Table shows the overall and treatment specific means of baseline variables from the tobacco survey conditional on nonmissing values. There are most 1.3% missing values for any given baseline variable. The survey ran from January 29th, 2025 through January 31st, 2025 on the survey research platform Prolific. The overall sample include 2,005 current or recent cigarette smokers, as defined by Prolific screening tools. The p-value represents the two-sided t-test p-value for equality of means.

Appendix Tables 2-4 provide the full regression model results that correspond to Figure 1 of the main paper. Here, we estimate Equation 1 of the main paper for 14 outcomes variables on the treatment indicator and a series of baseline controls.

¹<https://homewoodirb.jhu.edu/>.

Table 2: Treatment Effect Regression Estimates

	Quit Smoking	Reduce Smoking	Buy in Bulk	Cheaper Brands	Lower Tax States
Tax Treatment	0.042 (0.018)	0.108 (0.022)	0.053 (0.020)	0.166 (0.020)	0.149 (0.017)
Age	0.003 (0.001)	-0.000 (0.001)	-0.002 (0.001)	-0.000 (0.001)	-0.002 (0.001)
Education					
High School	0.054 (0.070)	0.008 (0.086)	-0.002 (0.079)	-0.105 (0.079)	0.075 (0.066)
Some College	0.079 (0.069)	-0.071 (0.085)	0.002 (0.077)	-0.107 (0.078)	0.062 (0.065)
College Grad.	0.034 (0.070)	0.021 (0.087)	0.022 (0.079)	-0.130 (0.080)	0.121 (0.066)
Graduate Degree	-0.049 (0.074)	-0.019 (0.091)	0.107 (0.083)	-0.067 (0.084)	0.158 (0.069)
Race/Ethnicity					
Black	-0.002 (0.027)	0.038 (0.033)	0.090 (0.030)	-0.062 (0.031)	0.031 (0.025)
Asian	0.056 (0.060)	-0.018 (0.074)	-0.068 (0.068)	0.018 (0.068)	-0.018 (0.056)
Mixed	0.064 (0.038)	0.016 (0.047)	-0.015 (0.043)	-0.091 (0.043)	0.026 (0.036)
Other	-0.020 (0.051)	-0.045 (0.063)	0.003 (0.057)	0.020 (0.058)	0.024 (0.048)
Children in Home	0.027 (0.019)	0.010 (0.024)	0.044 (0.022)	0.033 (0.022)	0.012 (0.018)
Income (\$10,000)	-0.003 (0.002)	0.001 (0.003)	0.003 (0.002)	-0.015 (0.002)	0.003 (0.002)
Tobacco Behaviors					
Daily Smoking	0.004 (0.026)	-0.008 (0.032)	0.049 (0.029)	-0.041 (0.029)	-0.029 (0.024)
Cigarettes/Day	-0.003 (0.001)	-0.002 (0.002)	-0.001 (0.001)	0.005 (0.002)	0.002 (0.001)
Cigarette Spending/Week \$	-0.000 (0.000)	0.000 (0.000)	0.002 (0.000)	0.000 (0.000)	0.001 (0.000)
Never uses Non-Combustibles	0.041 (0.021)	-0.048 (0.027)	-0.068 (0.024)	-0.117 (0.024)	-0.043 (0.020)
Daily Non-Combustible Use	0.052 (0.027)	-0.067 (0.033)	-0.031 (0.030)	-0.051 (0.030)	-0.028 (0.025)
Purchasing Behavior					
Carton	-0.064 (0.025)	0.021 (0.031)	0.214 (0.028)	-0.001 (0.028)	0.034 (0.023)
Loose	-0.109 (0.039)	0.007 (0.048)	-0.103 (0.044)	-0.254 (0.044)	-0.038 (0.037)
Single	0.113 (0.050)	-0.069 (0.062)	-0.097 (0.057)	-0.140 (0.057)	0.065 (0.047)
Missing					
Education	0.161 (0.301)	-0.384 (0.372)	0.274 (0.339)	0.061 (0.343)	0.015 (0.283)
Income	0.302 (0.139)	-0.154 (0.171)	-0.208 (0.156)	0.002 (0.158)	-0.174 (0.130)
Children	0.124 (0.081)	-0.102 (0.101)	0.031 (0.092)	-0.015 (0.093)	-0.046 (0.076)
Cigarettes/Day	-0.028 (0.081)	0.032 (0.101)	-0.035 (0.092)	0.229 (0.093)	-0.016 (0.076)
Purchasing Behavior	-0.254 (0.402)	0.403 (0.498)	-0.304 (0.454)	-0.164 (0.458)	-0.246 (0.378)
Noncombustibles	0.377 (0.286)	-0.561 (0.354)	-0.330 (0.323)	-0.389 (0.326)	-0.162 (0.269)
Constant	0.026 (0.080)	0.527 (0.099)	0.226 (0.090)	0.532 (0.091)	0.062 (0.075)

The table presents the full regression results that correspond to the treatment effects in Figure 1 of the main paper. Each column reports a different binary outcome. The reduce smoking column indicates the respondent claims that they will reduce but not quit smoking cigarettes.

Table 3: Treatment Effect Regression Estimates

	Informal Markets	Online Shopping	N. American Reservations	Loose Tobacco	E-Cigarettes
Tax Treatment	0.003 (0.012)	0.051 (0.015)	0.061 (0.013)	0.079 (0.015)	0.080 (0.018)
Age	-0.003 (0.001)	-0.000 (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.002 (0.001)
Education					
High School	0.015 (0.045)	0.115 (0.059)	0.039 (0.051)	-0.023 (0.057)	0.046 (0.071)
Some College	0.005 (0.045)	0.095 (0.058)	0.044 (0.050)	-0.047 (0.056)	0.077 (0.070)
c College Grad.	0.004 (0.046)	0.168 (0.060)	0.063 (0.051)	-0.064 (0.057)	0.113 (0.071)
Graduate Degree	0.096 (0.048)	0.214 (0.063)	0.043 (0.054)	-0.039 (0.060)	0.166 (0.075)
Race/Ethnicity					
Black	0.056 (0.017)	0.081 (0.023)	-0.038 (0.020)	-0.042 (0.022)	0.026 (0.027)
Asian	-0.014 (0.039)	0.044 (0.051)	0.018 (0.044)	-0.012 (0.049)	0.111 (0.061)
Mixed	0.038 (0.025)	0.021 (0.032)	0.044 (0.028)	0.001 (0.031)	-0.003 (0.038)
Other	-0.056 (0.033)	-0.021 (0.043)	-0.018 (0.037)	-0.029 (0.041)	-0.045 (0.051)
Children in Home	-0.021 (0.013)	-0.017 (0.016)	-0.027 (0.014)	-0.001 (0.016)	0.022 (0.020)
Income (\$10,000)	-0.000 (0.001)	0.001 (0.002)	0.001 (0.002)	-0.003 (0.002)	0.002 (0.002)
Tobacco Behaviors					
Daily Smoking	-0.058 (0.017)	-0.034 (0.022)	0.012 (0.019)	0.037 (0.021)	-0.069 (0.026)
Cigarettes/Day	-0.000 (0.001)	-0.001 (0.001)	0.001 (0.001)	0.003 (0.001)	0.000 (0.001)
Cigarette Spending/Week \$	0.001 (0.000)	0.001 (0.000)	0.001 (0.000)	0.000 (0.000)	0.001 (0.000)
Never uses Non-Combustibles	-0.036 (0.014)	-0.068 (0.018)	0.010 (0.016)	-0.031 (0.018)	-0.470 (0.022)
Daily Non-Combustible Use	-0.002 (0.017)	-0.026 (0.023)	0.019 (0.019)	0.006 (0.022)	0.133 (0.027)
Purchasing Behavior					
Carton	-0.013 (0.016)	-0.001 (0.021)	0.075 (0.018)	-0.034 (0.020)	0.027 (0.025)
Loose	0.025 (0.025)	0.103 (0.033)	0.039 (0.028)	0.638 (0.032)	-0.039 (0.039)
Single	0.069 (0.033)	-0.035 (0.043)	-0.035 (0.037)	0.000 (0.041)	-0.136 (0.051)
Missing					
Education	-0.080 (0.196)	0.004 (0.256)	-0.032 (0.220)	-0.160 (0.246)	0.186 (0.305)
Income	0.030 (0.090)	0.017 (0.118)	-0.067 (0.101)	-0.032 (0.113)	-0.044 (0.140)
Children	0.028 (0.053)	-0.022 (0.069)	-0.012 (0.060)	-0.058 (0.067)	-0.112 (0.082)
Cigarettes/Day	0.024 (0.053)	0.032 (0.069)	0.078 (0.060)	0.080 (0.067)	0.014 (0.082)
Purchasing Behavior	-0.017 (0.262)	-0.202 (0.342)	-0.152 (0.295)	0.904 (0.329)	-0.795 (0.407)
Noncombustibles	-0.017 (0.262)	-0.202 (0.342)	-0.152 (0.295)	0.904 (0.329)	-0.795 (0.407)
Constant	0.209 (0.052)	0.001 (0.068)	-0.005 (0.058)	0.155 (0.065)	0.570 (0.081)

The table presents the full regression results that correspond to the treatment effects in Figure 1 of the main paper. Each column reports a different binary outcome. The reduce smoking column indicates the respondent claims that they will reduce but not quit smoking cigarettes.

Table 4: Treatment Effect Regression Estimates

	Nicotine Pouches	Snus	Chewing Tobacco
Tax Treatment	-0.010 (0.015)	0.003 (0.007)	0.007 (0.010)
Age	-0.002 (0.001)	-0.000 (0.000)	-0.000 (0.000)
Education			
High School	0.020 (0.058)	0.030 (0.027)	0.033 (0.038)
Some College	0.001 (0.057)	0.016 (0.027)	0.020 (0.037)
College Grad.	0.071 (0.058)	0.031 (0.027)	0.055 (0.038)
Graduate Degree	0.094 (0.061)	0.041 (0.029)	0.111 (0.040)
Race/Ethnicity			
Black	0.005 (0.022)	0.001 (0.010)	0.034 (0.015)
Asian	0.074 (0.050)	-0.027 (0.023)	-0.006 (0.032)
Mixed	-0.047 (0.031)	-0.007 (0.015)	-0.028 (0.020)
Other	-0.029 (0.042)	0.003 (0.020)	-0.006 (0.027)
Children in Home	-0.000 (0.016)	0.004 (0.008)	0.025 (0.010)
Income (\$10,000)	0.002 (0.002)	0.000 (0.001)	0.002 (0.001)
Tobacco Behaviors			
Daily Smoking	-0.056 (0.021)	-0.013 (0.010)	-0.030 (0.014)
Cigarettes/Day	0.004 (0.001)	0.001 (0.001)	-0.001 (0.001)
Cigarette Spending/Week \$	0.000 (0.000)	0.000 (0.000)	0.001 (0.000)
Never uses Non-Combustibles	-0.162 (0.018)	-0.032 (0.008)	-0.056 (0.012)
Daily Non-Combustible Use	-0.020 (0.022)	-0.007 (0.010)	-0.044 (0.014)
Purchasing Behavior			
Carton	0.010 (0.020)	0.019 (0.010)	0.022 (0.013)
Loose	0.050 (0.032)	0.008 (0.015)	0.038 (0.021)
Single	-0.021 (0.041)	0.004 (0.020)	-0.017 (0.027)
Missing			
Education	-0.129 (0.249)	-0.000 (0.117)	0.022 (0.163)
Income	0.153 (0.115)	-0.008 (0.054)	-0.016 (0.075)
Children	-0.055 (0.067)	-0.023 (0.032)	0.037 (0.044)
Cigarettes/Day	0.199 (0.067)	0.018 (0.032)	0.015 (0.044)
Purchasing Behavior	0.805 (0.333)	-0.026 (0.157)	0.957 (0.218)
Noncombustibles	-0.350 (0.237)	-0.050 (0.111)	-0.141 (0.155)
Constant	0.230 (0.066)	-0.010 (0.031)	0.018 (0.043)

The table presents the full regression results that correspond to the treatment effects in Figure 1 of the main paper. Each column reports a different binary outcome. The reduce smoking column indicates the respondent claims that they will reduce but not quit smoking cigarettes.

2 Bureau of Labor Statistics (BLS) Consumer Expenditure (CE) Survey—Additional Details

Consumer Unit

The BLS refers to a “consumer unit” (CU) as the surveyed unit (i.e. household). The BLS provides the following definition:

“A consumer unit comprises either:

1. all members of a particular household who are related by blood, marriage, adoption, or other legal arrangements;
2. a person living alone or sharing a household with others or living as a roomer in a private home or lodging house or in permanent living quarters in a hotel or motel, but who is financially independent;
3. two or more persons living together who use their income to make joint expenditure decisions.

Financial independence is determined by the three major expense categories: Housing, food, and other living expenses. To be considered financially independent, at least two of the three major expense categories have to be provided entirely, or in part, by the respondent.”

Respondent

The individual in the CU who responds to the BLS interviewer or fills out the diary data. The respondent can also be the reference person, but this is not necessarily true. The data does not identify the respondent in the CU, but does include some variables indicating how the respondent answered some questions (e.g. with difficulty, used a bill/statement as a reference). The BLS contacts CUs in advance to make sure a qualified adult respondent is on hand and prepared for the interview.

Reference Person

The individual in the CU named by the survey respondent as “the person or one of the persons who owns or rents the home.” Only one person in the CU is listed as the reference person. Relationships coded by the BLS in the CU such as “spouse” or “child” are indicated with respect to this named reference person.

Diary Survey

This is a survey performed over two weeks, focusing on purchases which would be less likely to be remembered in a quarterly survey. The respondent received a scheduled visit from the interviewer, who documents demographic and other CU details. The respondent will complete the two weekly expenditure diaries, which are then returned and processed by BLS.

Interview Survey

This survey is performed over four quarterly interviews (3 months apart), focusing on longer-term and larger purchases than the diary. As with the diary, the respondent receives a scheduled interview. Questions are asked in multiple forms and compared. From the CE documentation:

Expenditure data are collected in each interview via multiple question patterns depending on the types of expenditures collected. One question pattern asks the respondent for the month of purchase of each reported expenditure. A second question pattern asks for quarterly amounts of expenditures. A third question pattern asks for the payment frequency and the amount based on said frequency.

Data on income and wages are collected in the first and fourth surveys, and are asked in multiple patterns as above. Expenditures collected in each quarter are in reference to the prior three months, so if a CU is interviewed in April, expenditures will cover January-March. The questions are in reference to this 3-month period, rather than individual monthly estimates.

Data Collection Procedures

The addresses selected for contact are drawn by the CE survey from Census Bureau data within each geographical region. These addresses are sent a letter indicating selection and the purpose of the survey. Both diary and interview surveys are conducted primarily by a scheduled in person interviewer visit and some telephone contact. If a CU moves during the interview period, they are dropped from the survey, so a subsequent household is not interviewed just because they are present at the same address as the former one.

Sample Design

The BLS attempts to gather nationally representative samples of the population using clusters or “primary sampling units” (PSU) of Census Bureau-defined core-based statistical areas (CBSA). Addresses are drawn from within a set of the largest PSUs along with a representative sample of smaller PSUs, using residential addresses from Census Bureau’s master address file.²

Response Rates (as of 2020)

For the interview survey, approximately 13,000 addresses are contacted each quarter, with usable interviews performed at approximately 5,000 of these addresses each quarter. For the diary survey, approximately 18,000 addresses are contacted annually with 6,700 usable two-week surveys collected. After dropping non-responsive addresses (e.g. no response, vacant, destroyed home, nonresidential, refusal) both surveys had a 53% interview rate in 2019.³

Urban and Rural CUs

The BLS offers definitions for urban and rural which accord with the Census Bureau. The sample is over 98% urban by the following definitions:

Urban Consumer Units are all persons living in a Metropolitan Statistical Area (MSA) (defined by the Office of Management and Budget) and in Urban Places of 2,500 or more persons (defined by the Census Bureau) outside of MSAs.

[Rural Consumer units are] all persons living outside a Metropolitan Statistical Area (MSA) and within an area with a population of less than 2,500 persons.

Spouse-tagged variables:

The BLS defines several categories of relation to the reference person, including unmarried partner, spouse, child or adopted child, grandchild, etc. Each of these is tagged in the MEMI or MEMD file using a CU_CODE. The CU_CODE for unmarried partner is zero and the CU_CODE for spouse is two. The spouse variables in the FMLI and FMLD files are coded explicitly for the condition CU_CODE = 2. Thus, these only apply to individuals reported as spouses by the respondent, rather than unmarried partners.

²For more details, see <https://www.bls.gov/opub/hom/cex/design.htm>

³See the response table, *ibid*.

3 Bureau of Labor Statistics (BLS) Consumer Expenditure Survey—Additional Results

Table 5: Average Treatment Effects of an Additional \$1 of Cigarette Taxes on Quarterly Human Capital Spending, Leave-One-Out

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
All Households													
Cigarette Tax (\$1)	2.754 (8.048)	-3.123 (7.935)	-6.551 (4.972)	-4.263 (6.550)	-3.969 (8.823)	-3.838 (7.359)	-3.693 (7.378)	-4.040 (6.235)	-4.145 (6.906)	-5.043 (2.885)	-3.795 (7.693)	-5.128 (6.820)	-3.846 (7.785)
Observations	293,366	293,366	293,366	293,366	293,366	293,366	293,366	293,366	293,366	293,366	293,366	293,366	293,366
Conditional On Cigarette Purchase													
Cigarette Tax (\$1)	-5.961 (12.848)	-18.061 (21.617)	-22.231 (25.312)	-26.701 (23.425)	-25.870 (24.112)	-25.574 (23.334)	-25.403 (23.703)	-25.615 (23.511)	-27.012 (24.624)	-21.012 (6.761)	-24.901 (23.500)	-26.483 (23.468)	-22.751 (23.168)
Observations	43,272	43,272	43,272	43,272	43,272	43,272	43,272	43,272	43,272	43,272	43,272	43,272	43,272

CE-D data from 1996 to 2022. Coefficients show the average treatment effect of a \$1 increase in cigarette taxes. Outcomes are the total spending from the aggregate “Human Capital” spending category less (1) Food Consumed at Home, (2) House Keeping, (3) Drugs Supplies, (4) Personal Care Products, (5) Personal Care Services, (6) Baby Food, (7) Boy Child Spending, (8) Girl Child Spending, (9) Infant Spending, (10) Utilities and Heating Fuel, (11) School Supplies, (12) Reading Supplies, (13) Health Supplies. Regressions are estimated using de Chaisemartin et al.’s (2022) estimator (`did_multiplgt_dyn`). State is specified as the unit and year-by-quarter is specified as the period. The following options are specified: eight periods are chosen for pre and post-period estimation, cigarette taxes are categorized in \$1 intervals, and policy and demographic controls were noted. State-clustered standard errors in parentheses.

Table 6: Average Treatment Effects of an Additional \$1 of Cigarette Taxes on Quarterly Gas Station Spending, Leave-One-Out

	(1)	(2)	(3)	(4)	(5)	(6)
All Households						
Cigarette Tax (\$1)	-6.639 (2.581)	-7.334 (2.775)	-6.866 (2.359)	-7.172 (2.572)	-1.156 (0.570)	-7.782 (3.113)
Observations	293,366	293,366	293,366	293,366	293,366	293,366
Conditional On Cigarette Purchase						
Cigarette Tax (\$1)	-9.193 (3.105)	-10.983 (3.184)	-9.337 (3.309)	-11.404 (3.574)	-3.778 (1.328)	-10.069 (3.436)
Observations	43,272	43,272	43,272	43,272	43,272	43,272

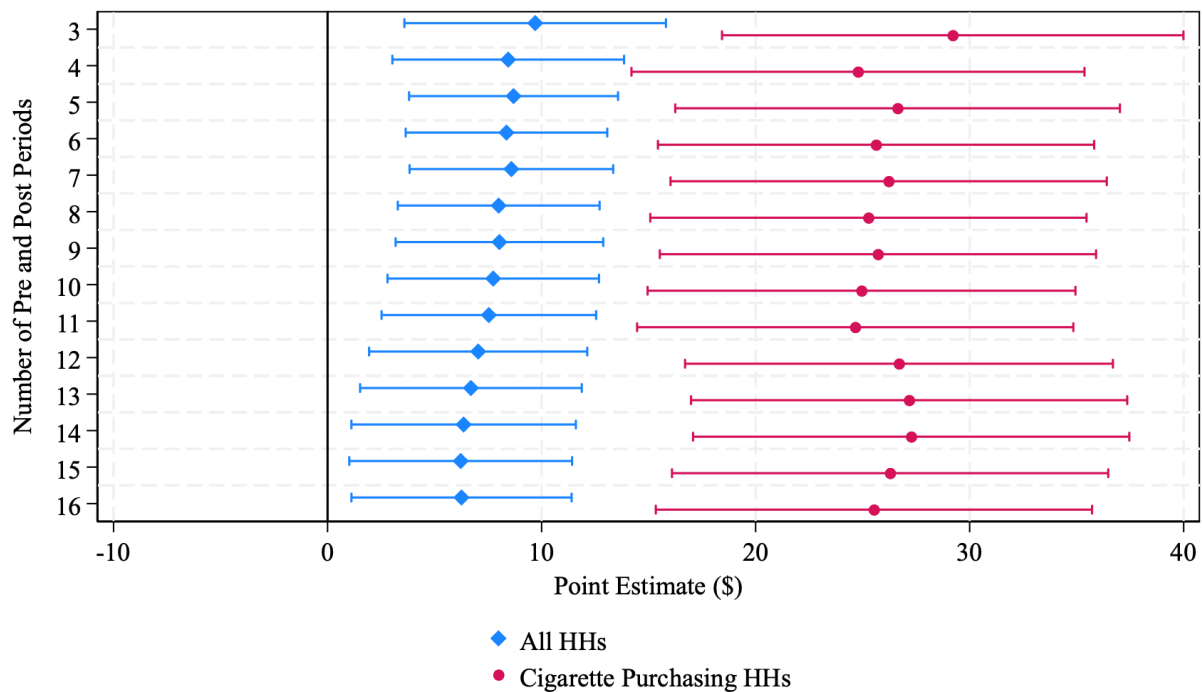
CE-D data from 1996 to 2022. Coefficients show the average treatment effect of a \$1 increase in cigarette taxes. Outcomes are the total spending from the aggregate “Gas Station” spending category less (1) Snacks/Chips, (2) Cola/Soda, (3) Cookies/Crackers, (4) Beer, (5) Auto Fuel, (6) Lottery Tickets. Regressions are estimated using de Chaisemartin et al.’s (2022) estimator (`did_multiplgt_dyn`). State is specified as the unit and year-by-quarter is specified as the period. The following options are specified: eight periods are chosen for pre and post-period estimation, cigarette taxes are categorized in \$1 intervals, and policy and demographic controls where noted. State-clustered standard errors in parentheses.

Table 7: Average Treatment Effects of an Additional \$1 of Cigarette Taxes on Other Outcomes

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
All Households													
Cigarette Tax (\$1)	12.321 (13.527)	3.350 (9.548)	58.634 (152.825)	-29.792 (22.330)	57.447 (180.955)	-3.217 (17.902)	-8.911 (15.436)	-1.211 (2.561)	-0.021 (1.775)	1.604 (46.734)	31.687 (64.961)	-34.560 (16.238)	6.295 (18.113)
Dep. Var. Mean	1,750.058	100.252	4,092.799	304.688	2,110.176	785.780	583.383	81.292	30.532	239.153	145.097	392.172	99.636
Observations	572,026	572,026	572,026	572,026	572,026	572,026	572,026	572,026	572,026	572,026	572,026	572,026	572,026
Conditional On Cigarette Purchase													
Cigarette Tax (\$1)	-20.095 (18.770)	11.183 (12.495)	-139.355 (149.100)	-29.710 (26.863)	-280.501 (372.599)	73.390 (129.170)	1.475 (56.763)	-0.985 (2.759)	-9.385 (9.425)	-6.297 (16.635)	-35.358 (87.572)	-68.195 (76.841)	-3.765 (19.580)
Dep. Var. Mean	1,618.187	132.918	3,418.082	293.837	2,078.014	621.237	531.791	65.247	26.908	134.508	151.778	225.443	79.484
Observations	104,367	104,367	104,367	104,367	104,367	104,367	104,367	104,367	104,367	104,367	104,367	104,367	104,367

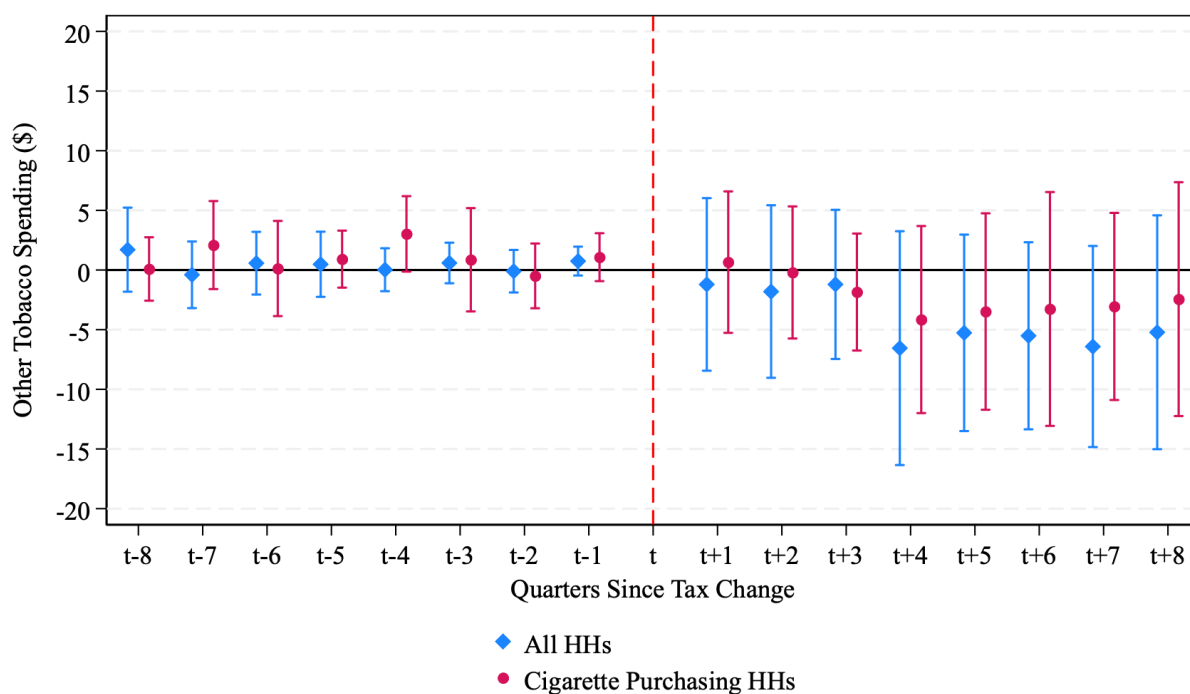
CE-I data from 1996 to 2022. Coefficients show the average treatment effect of a \$1 increase in cigarette taxes. Outcomes are expenditure categories as follows: (1) Total Food Spending, (2) Alcohol Spending, (3) Housing Spending, (4) Apparel Spending, (5) Transportation Spending, (6) Health Spending, (7) Entertainment Spending, (8) Personal Care Spending, (9) Reading Spending, (10) Education Spending, (11) Miscellaneous Spending, (12) Cash Contributions Spending, (13) Insurance Spending. Regressions are estimated using de Chaisemartin et al.'s (2022) estimator (-did_multiplgt_dyn-). State is specified as the unit and year-by-quarter is specified as the period. The following options are specified: eight periods are chosen for post-period estimation, cigarette taxes are categorized in \$1 intervals and policy and demographic controls where noted. Data weighted with BLS FINLWT21. State-clustered standard errors in parentheses.

Figure 1: Average Treatment Effects of an Additional \$1 of Cigarette Taxes on Quarterly Cigarette Spending by Number of Pre and Post-Periods Observed



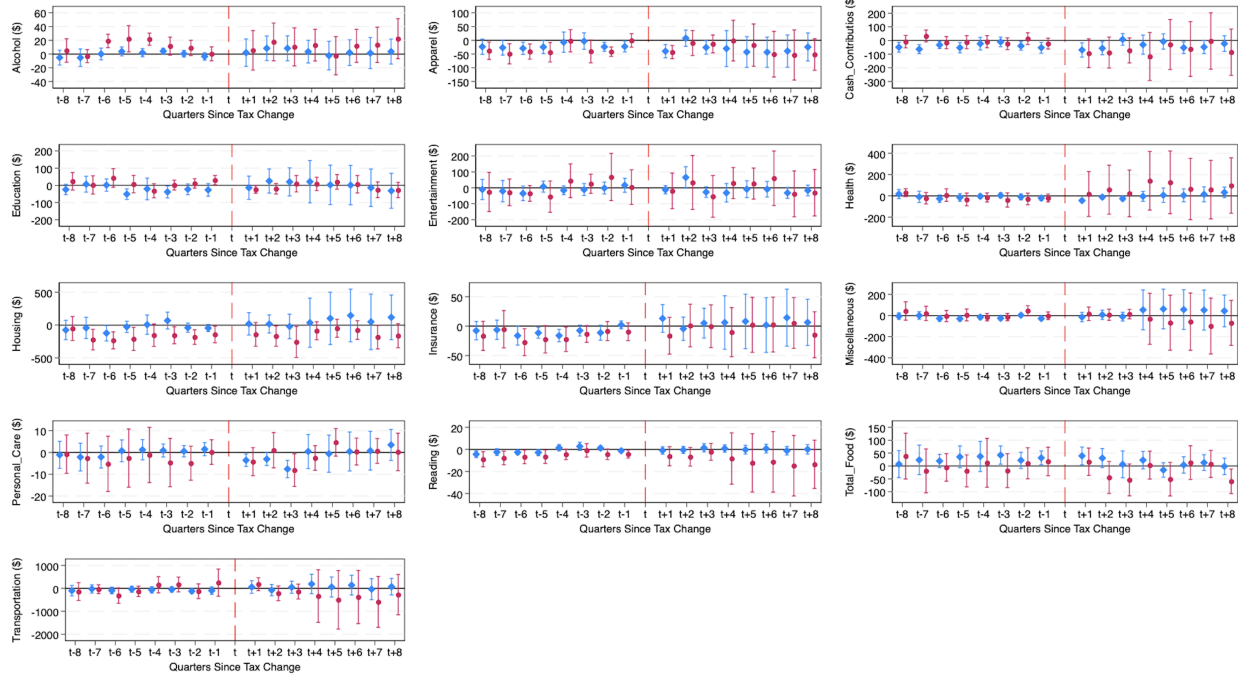
CE-I data from 1996 to 2022. Coefficients show the average treatment effect of a \$1 increase in cigarette taxes. Regressions are estimated using de Chaisemartin et al.'s (2022) estimator (did multiplgt dyn). State is specified as the unit and year-by-quarter is specified as the period. The following options are specified: periods chosen for pre and post-period estimation specified, cigarette taxes are categorized in \$1 intervals, and policy and demographic controls are used for all estimates. Data weighted with the BLS CE sampling weight, FINLWT21, which is the number of similar households that an observed household represents in any given quarter

Figure 2: Average Treatment Effects of an Additional \$1 of Cigarette Taxes on Other Tobacco Spending



CE-I data from 1996 to 2022. Coefficients show the average treatment effect of a \$1 increase in cigarette taxes. Regressions are estimated using de Chaisemartin et al.'s (2022) estimator (did multiplgt dyn). State is specified as the unit and year-by-quarter is specified as the period. The following options are specified: periods chosen for pre and post-period estimation specified, cigarette taxes are categorized in \$1 intervals, and policy and demographic controls are used for all estimates. Data weighted with the BLS CE sampling weight, FINLWT21, which is the number of similar households that an observed household represents in any given quarter

Figure 3: Average Treatment Effects of an Additional \$1 of Cigarette Taxes on All Major Spending Categories



Corresponding ATEs are shown in Appendix Table X. CE-I data from 1996 to 2022. Coefficients show the average treatment effect of a \$1 increase in cigarette taxes. Outcomes are expenditure categories as follows: (1) Total Food Spending, (2) Alcohol Spending, (3) Housing Spending, (4) Apparel Spending, (5) Transportation Spending, (6) Health Spending, (7) Entertainment Spending, (8) Personal Care Spending, (9) Reading Spending, (10) Education Spending, (11) Miscellaneous Spending, (12) Cash Contributions Spending, (13) Insurance Spending. Regressions are estimated using de Chaisemartin et al.'s (2022) estimator (`-did_multiplgt_dyn-`). State is specified as the unit and year-by-quarter is specified as the period. The following options are specified: eight periods are chosen for post-period estimation, cigarette taxes are categorized in \$1 intervals and policy and demographic controls where noted. Data weighted with BLS FINLWT21. State-clustered standard errors in parentheses.